

**CLAIMS**

1. A method of regenerating a spent catalyst composition for decomposing volatile organic compounds comprising washing the spent catalyst composition with water.
2. A method of regenerating a spent catalyst composition for decomposing organophosphonate compounds, said catalyst composition containing a catalyst selected from the group consisting of manganese oxide, vanadium, vanadium oxide, activated carbon, diphosphorus pentaoxide and mixtures thereof, comprising washing the spent catalyst composition with water.
3. A method of regenerating a spent catalyst composition containing a catalyst selected from the group consisting of manganese oxide, titanium dioxide, vanadium, vanadium oxide, activated carbon, diphosphorus pentaoxide and mixtures thereof, comprising treating the catalyst composition by a process selected from the washing with water, washing with a solvent, heating, exposing to light, purging with oxygen, purging with a reactive gas, exposing to microwave radiation, and combinations thereof.
4. A catalytic reactor comprising a catalyst composition consisting of manganese oxide catalyst carried on a catalyst support material and a visible light source.
5. A catalytic reactor comprising a catalyst composition and heat source for heating said catalyst composition to a temperature of at least 300 C, said catalyst composition containing a catalyst selected from the group consisting of manganese oxide, vanadium, vanadium oxide, activated carbon, diphosphorus pentaoxide and mixtures thereof.

6. An air cleaner for a vehicle comprising a catalyst selected from the group consisting of manganese oxide and mixtures thereof carried on a catalyst support material and a visible light source.
7. An air cleaner as recited in claim 6 wherein the vehicle is an aircraft.
8. An air cleaner for a building comprising a catalyst composition consisting of manganese oxide catalyst carried on a catalyst support material and a visible light source.
9. An air cleaner for a vehicle comprising a catalyst composition and a heat source for heating said catalyst composition to a temperature of at least 300 C, said catalyst composition containing a catalyst selected from the group consisting of manganese oxide, vanadium, vanadium oxide, activated carbon, diphosphorus pentaoxide and mixtures thereof.
10. An air cleaner as recited in claim 9 wherein the vehicle is an aircraft.
11. An air cleaner for a building comprising a catalyst composition and a heat source for heating said catalyst composition to a temperature of at least 300 C, said catalyst composition containing a catalyst selected from the group consisting of manganese oxide, vanadium, vanadium oxide, activated carbon, diphosphorus pentaoxide and mixtures thereof.
12. A personal protection device for filtering breathing air comprising a catalyst composition consisting of manganese oxide catalyst carried on a catalyst support material and a visible light source.